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ABSTRACT

One of 10 documents developed for preschool programs for handicapped children, the document reports a study of the long term effectiveness of the preschool program supported by the Board of Cooperative Educational Services in Putnam/Northern Westchester (New York). The study evaluated the impact of the program on 66 children in the areas of later school placement, rate of retention, requirement for special services, teacher ratings, parent ratings, and persistence of effect. Results showed the long term effectiveness of the program in findings indicating that the preschool program graduates are performing adequately in school, progressing normally through the grades, socializing well with their peers, requiring a minimal amount of special services, and achieving at a similar level to their peers in cognitive and academic areas. The children were rated as having very positive attitudes toward school by both their teachers and parents. (DB)

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THE LONG-RANGE EFFECTS OF

THE REGIONAL DEMONSTRATION PROGRAM FOR

PRESCHOOL HANDICAPPED CHILDREN

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A REGIONAL PROGRAM FOR PRESCHOOL HANDICAPPED CHILDREN

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INTRODUCTION

Background

Early intervention services for disadvantaged and handicapped children have received widespread attention over the past 15 years. The increased interest in these early childhood services can be attributed to the work of Hunt (1961), who found that the manipulation of a child's environment in the early years would result in the expansion of that child's intellectual capacity. Additional support for preschool education also came from Bloom (1964). After conducting a review of child development research, he concluded that a child's experiences in the early years of life have a direct impact on subsequent development. Given the attested value of early intervention services, it is not surprising that many preschool programs were subsequently initiated, and that further studies designed to assess their efficacy were simultaneously undertaken.

The studies that have been conducted on early childhood education have focused on two aspects of program impact--the immediate results and the lasting effects after preschool. With regard to immediate program impact, the research has provided overwhelming evidence of the success of early intervention services in improving the capacity of preschool children. These positive results have been demonstrated with disadvantaged children (Gray and Klaus, 1969; Weikart, Kamii, and Radin, 1964; Bereiter and Engelmann, 1966; Hodges, McCandless, and Spicker, 1967), as well as with a variety of high risk and handicapped students, i.e. developmentally delayed, visually impaired, hearing impaired, mentally retarded, physically impaired and emotionally disturbed (Bricker and Bricker, 1971; Hayden and Haring, 1974; Garber, 1977; Karnes, 1973; Rosen and Sitkei, 1980; Stephens,

Telfer, Aharoni, Downhower, Traub, and Vaughn, 1980). Among the major findings of these studies are that children participating in preschool education programs experience substantial gains in IQ scores, demonstrate significant increases in cognitive, motor, social and other developmental areas, and achieve a high percentage of the goals identified on their individualized educational plans. In addition, parents have reported very high levels of satisfaction with their children's growth as a result of participation in these programs. The findings, therefore, provide substantial evidence of the immediate effects of preschool education. However, the question still remains as to whether these gains can be maintained once the child has left the preschool environment.

In assessing the long-term efficacy of early intervention services, research has focused primarily upon the disadvantaged population. Spurred by the federal efforts to examine Headstart effects, numerous studies were undertaken to analyze the impact of preschool education on such factors as IQ scores, achievement scores, grade retention, and assignment to special education (Cicirelli, 1969; Weikart, 1971; Beller, 1974; Gordon, 1973; Palmer & Semlear, 1976; Abelson, Zigler, & Deblasi, N.D.). While the studies indicated that the initial gains in IQ scores were not maintained by preschool students, the research did reveal that these scores were significant predictors of later school achievement. That is, experimental groups significantly outscored control children on achievement tests, especially in the area of mathematics. Furthermore, children who had participated in preschool programs experienced a reduced need for special education services and a reduced incidence of grade failure, and also indicated a stronger commitment to schooling and a higher self-rating of school performance than comparable controls. In short, these efficacy

studies indicated that preschool education, indeed, had a positive and lasting impact on the disadvantaged.

In terms of the handicapped, the long-range effects of preschool intervention services received early attention in the works of Skeels and Dye (1939) and Kirk (1958; 1965). Studies undertaken by Skeels and Dye focused on the severely mentally retarded receiving institutional care. Assessments made 21 years after deinstitutionalization revealed that the experimental group was self-supporting and had attained a higher educational level than the control group. Research conducted by Kirk with the mildly and moderately mentally retarded also produced positive results. Kirk concluded that "children receiving preschool education in the community and institution made significantly greated changes in IQs and SQs (social quotient) on the Binet, Kuhlman, and Vineland tests as compared to the contrast group." (1965, p. 200) More recent studies have corroborated these early findings. Hayden and Haring (1976) reported that Down's Syndrome children who participated in preschool demonstrated more advanced skills across several grades than did similar children not exposed to early intervention. Additionally, studies of the trainable mentally retarded population revealed that children receiving two or more years of preschool education performed significantly higher than the control group in language, academics, self-help, and motor areas (Fredericks, Moore, and Baldwin, 1980). These studies provide evidence on the long-term impact of early intervention on the mentally retarded population. Unfortunately, a gap exists in the research on lasting effects of preschool for other handicapped groups.

One study which attempted to address this gap was the evaluation of graduates from the Handicapped Children's Early Education Program (HCEEP)

of the Battelle Institute (DeWeerd & Cole, 1976). This study involving 688 graduates, examined the long range effects of early intervention services in terms of placement, special services, and parent perceptions of program impact. The findings with regard to placement indicated that two-thirds of the children were placed in regular education classrooms with the remaining students enrolled in special education. The data on special services revealed that 50% of the children in regular classrooms were receiving additional support services, while the other half of the sample were participating in these classrooms without such assistance. In addition, 97% of the parents of handicapped children who graduated from HCEEP programs reported positive results for their child. As these results indicate, some evidence is available to substantiate the lasting effects of preschool education for a variety of handicapping conditions.

To provide further evidence of effectiveness, Karnes, Shwedel, and Lewis (1980) initiated a follow-up study of children who had participated in the Joint Early Education Program for the Handicapped (JEEPH), a non-categorical preschool program in Champaign County, Illinois. Children involved in this study were predominately speech and language impaired (52%), although the sample also included children with educational handicaps, specific learning disabilities, behavior disorders and mental impairments. The purpose of the study was to assess the long range impact of preschool education on project children, examining such factors as placement, grade retention, assignment to special services, school achievement, and teacher and parent ratings of child performance. Through this research, therefore, Karnes expanded not only the type of handicapped population being examined, but the range of academic and social indicators being assessed. The findings from this study indicated that JEEPH graduates were performing adequately in school across all factors.

The Karnes study suggests that children with all types of handicaps and all ranges of severity receive lasting benefits from participation in early childhood programs. However, more research is needed with a variety of impaired populations before the long-range efficacy of preschool education for the handicapped can be established. Utilizing the Karnes design and procedures as a guide, the present study was undertaken in order to contribute to the knowledge base regarding lasting effects for the handicapped. This study involved a follow-up assessment of children who had graduated from the Putnam/Northern Westchester BOCES Preschool Program (PSHP), a Regional Demonstration Program for Preschool Handicapped Children in Yorktown Heights, New York.

Program Description

The BOCES Preschool Program originated in 1976 to provide early intervention services for children with special needs from birth to age five. The PSHP Program serves a consortium of eighteen school districts and is a noncategorical program, primarily designed for children who are mildly or moderately impaired. Membership is open to preschool students with a variety of handicapping conditions; at present, PSHP serves children whose handicaps include: severely speech/language impaired, emotionally disturbed, physically handicapped, specific learning disability, hard of hearing/deaf, and mentally retarded. To address the diverse needs of this population, the PSHP program operates several school-based sites located throughout a two-county area. At each PSHP site, both a morning and afternoon session are offered with approximately ten children in each session. Children spend 2½ hours per day, five days per week, over a ten-month period in classrooms staffed by a full-time teacher-teacher aide team with support from parent volunteers.

The specific curriculum approach of the BOCES Preschool Handicapped Program is designed so that participating students are taught sequenced skills according to their individual level of functioning and particular handicapping condition. Through a diagnostic-prescriptive process, staff determine the specific areas of need and corresponding curricula content for each child. Appropriate skills are specified in children's individualized educational plans (IEPs) which serve as the curriculum for PSHP. In implementing this curriculum, PSHP staff use instructional processes which are language-based and incorporate positive reinforcement techniques.

Other features of the Program relate to the organizational structures of the classroom, that is, the conditions under which the PSHP curriculum is presented. They include: a) a structured classroom schedule wherein activities are conducted according to a daily routine, so that children learn to move from activity to activity fairly independently; b) a transdisciplinary team approach wherein a classroom teacher, school psychologist, speech pathologist, and social worker provide assessments and direct services for children on an ongoing basis; and c) a parent involvement program in which parents are actively engaged as classroom volunteers, participate in the development of their children's educational plans, and attend monthly parent meetings where ideas and information on parenting and child development are exchanged.

The structured, routine schedule followed in PSHP classrooms is carefully planned and allows for large and small group activities, as well as individual time. The daily schedule includes structured play, creative play, art, snack, quiet time, and fine and gross motor ctivities. In conjunction with this classroom intervention program, the project provides these additional services for preschool handicapped children and their

families: screening, comprehensive diagnostic evaluations, child placement/referral, and linkage with outside agencies.

Purpose of the Study

In evaluating the impact of PSHP on the academic, cognitive, and social achievement of its graduates, the following key questions were raised.

1. Placement
   - What percentage of PSHP graduates were assigned to regular or special education classes?
   - Do these assignments differ significantly as a function of severity of handicap?
   - What is the current placement status of PSHP graduates?
   - How accurate was the PSHP staff in terms of their recommendations for placement?
2. Retention
   - What percentage of PSHP graduates has been retained?
3. Special Services
   - What percentage of the children in regular education classes currently requires special services?
   - What types of services are they receiving?
4. Teacher Ratings
   - How are PSHP graduates performing in their assigned classrooms as compared to their peers in terms of social, academic, cognitive, and communication skills?
   - How do the attitudes of these children concerning school in general, teachers, and peers compare to their classroom peers?

5. Parent Ratings

   - How do parents perceive the current performance of their handicapped child?
   - How do parents perceive the lasting benefits of PSHP for their handicapped child?

6. Persistence of effect

   - Do the positive effects of PSHP appear to persist throughout the early elementary school years?

The findings generated from these questions will be analyzed and discussed in terms of both their specific application to PSHP and their implications for preschool education in general. Of particular interest will be the cost-benefit of preschool intervention, the present results compared to past research, and the long range efficacy of PSHP in the academic and social achievement of its graduates.

METHOD

Sample

All children who graduated from the Preschool Program between January, 1976 and May, 1980 were considered for the final sample in this longitudinal assessment of PSHP effectiveness. The ultimate selection, however, was based upon the receipt of parent permission to review students' cumulative school records. A total of 66 parents granted such permission; the sample, thus, consisted of 66 children representing 39 percent of the total 171 program graduates. These children had spent an average of 13 months in the preschool program prior to graduation. Table 1 depicts the follow-up sample by year of graduation. Since enrollment at PSHP has steadily increased over the five and one-half years of operation, the sample is consistent with PSHP graduation trends.

TABLE 1

YEAR OF GRADUATION FROM PSHP

Year	N	%
1976	3	5
1977	8	12
1978	11	17
1979	17	26
1980	27	40
Total	66	100

The children were drawn from 15 of the 18 school districts served by the program. The distribution of the sample by district was comparable to total enrollment figures for PSHP graduates (see Appendix A). A further description of the sample in terms of pertinent background characteristics is discussed below.

Age and Sex. The sample was comprised of 49 males and 17 females (49% and 26%, respectively) who ranged in age from 5 years, 3 months, to 10 years, 1 month. The average age of these children was 6 years, 11 months (SD = 1 year/3 mos.).

Handicapping Condition. The primary handicapping condition for the sample at the time of entry into PSHP is found in Table 2. According to the table, the majority of the sample (64%) were classified as Speech/Language Impaired--a statistic also consistent with the total graduation and enrollment population of PSHP.

TABLE 2

PRIMARY HANDICAPPING CONDITION
AT TIME OF ENTRY INTO PSHP

Condition	N	%
1. Speech/Language Impairment	42	64
2. Learning Disability	4	6
3. Behavioral Disorder	5	7
4. Mental Impairment	2	3
5. Physical Handicap	6	9
6. No Formal Diagnosis	7	11
Total	66	100

Severity of Handicap. In order to establish an index of severity, children in the sample were classified according to pretest scores obtained on the General Cognitive Index (GCI) of the McCarthy Scales of Children's Abilities.[1] Children who scored 0 to -1 standard deviations below the GCI national mean[2] were considered mildly handicapped; a moderate classification was given to those scoring -1 to -2 standard deviations below the mean; children scoring -2 standard deviations below the mean were considered severely handicapped; finally those attaining a pretest score of 0 to +1 standard deviations above the mean were considered at risk. Table 3 provides the index of severity information.

TABLE 3

SEVERITY OF HANDICAPPING CONDITION

Category	N	%
At Risk (0 to +1 S.D. above the mean)	14	26
Mild (0 to -1 S.D. below the mean)	20	38
Moderate (-1 to -2 S.D. below the mean)	9	17
Severe (-2 or more S.D. below the mean)	10	19
Total	53*	100

*McCarthy scores available for only 53 students in the sample

[1]The McCarthy is administered to PSHP students at the time of entry into the program.

[2]GCI mean = 100; S.D. = 16

As indicated, data was available for 53 children (81%) in the follow-up sample. The table also reveals that approximately three-quarters of the children in this sample subset were classified mildly to severely handicapped. The overall GCI mean for this subset was 86.4. This mean is slightly below the PSHP population statistic, which suggests that the follow-up sample had a lower level of intellectual functioning than the general PSHP population. In summary, the background information indicates that the follow-up sample was representative of the total PSHP graduation population in terms of year of graduation, school district, sex, handicapping condition, and, for the most part, index of severity.

Instruments

The current academic and social performances of former PSHP students were assessed through three data collection techniques and their appropriate instrumentation: (1) Cumulative Record Form for the review of current student files; (2) a twenty-five item Teacher Questionnaire; and (3) a twelve-item Parent Interview.

The Cumulative Record Form allowed for the recording of a wide range of current student information obtained from the review of individual student files. This information included progression/retention data, special class/program/services required, diagnostic classification, performance on standardized tests, and yearly grade reports. In addition, more subjective information, such as teachers' comments, was recorded on the Cumulative Record Form.

The Teacher Questionnaire was developed by Karnes, Shwedel, and Lewis (1980) for a longitudinal study involving handicapped children

in Champaign County, Illinois. This instrument consisted of 25 items which combined 5-point Likert ratings with open-ended questions. Teachers were asked to rate the preschool child's performance as compared to other children in the class on the following variables: a) cognitive skills; b) academic skills; c) communication skills; d) attitude toward school and teacher; and, e) social interaction. The internal consistency coefficient for the total scale is .86. Alpha coefficients for the various subscale items are also high. Furthermore, the correlation between teacher ratings and standardized tests was computed to be .51, which attests to the predictive validity of the questionnaire.

The Parent Interview, also based upon a form developed by Karnes, et al. (1980), consisted of 12 open-ended items. The items measured parent perceptions concerning their child's performance in school, and the impact of preschool related to school performance.

Data Collection Procedures

Follow-up data from parents, teachers, and cumulative files were obtained during March and April, 1981. Cumulative files were reviewed during visits to individual schools and/or administrative offices. Initial contact in each district was made through the chairperson of the Committee of the Handicapped for that district. Subsequent communication took place directly with individual schools. Following the review of cumulative data at each district location, questionnaires were distributed to the students' current teacher. Arrangements were made at that time for the collection of the completed forms. In several instances, however, Teacher Questionnaires were mailed directly

to PSHP. Of the total distributed, 54 (82% of the follow-up sample) were returned in time for inclusion in the present analysis.

Parents were informed by letter of their prospective interview and their agreement to take part in such was included in their reply on the parent permission slip. Actual interviews were conducted by telephone during the same approximate time period as those procedures described above. Fifty-five parents (83% of the follow-up sample) took part in the survey. Although the 11 other parents had agreed to participate, several did not have telephones, and others could not be reached at any time during the course of the study.

Design

The ideal approach for providing answers to the key research questions raised in this study is through the use of an experimental research design. However, the ethical and legal considerations involved in selecting a control group for the ongoing Preschool Program evaluation prohibited the use of such a design in this follow-up study. Furthermore, the identification of a control group after the fact (ex post facto research) was limited by both cost and the availability of handicapped children comparable to PSHP graduates. Thus, the present research used a "one-shot case study" design (Campbell and Stanley, 1963) wherein data was gathered from the experimental students only, and collected on a one-time basis.

A major weakness of this design is the lack of comparative data. Consequently, the literature was cited as a basis of comparison to provide evidence of experimental (and control) group performance

on variables similar to those examined in the current study. Moreover, to add to the credibility of the results, the researchers relied upon convergent validity wherein information was gathered from several sources which addressed similar outcomes.

Analysis

Data was analyzed using a number of both descriptive and parametric statistical techniques. Frequency distributions and percentage rates were used to determine assignment and retention information, special service requirements of regular education students, and parent and teacher ratings. A chi square analysis was performed to determine whether placement in regular or special education differed depending upon the severity of handicap. Finally, a Kruskal-Wallis one-way analysis of variance was computed to determine whether school performance, as measured by teacher ratings, differed according to the age/grade of the handicapped child.

Limitations

As is often the case in studies where random assignment to conditions and other adequate control techniques are not always possible or appropriate, a number of methodological considerations can limit the results and implications of the research findings. One limitation already noted in this study relates to the research design itself. The study lacked a control group; thus, it cannot be said for certain that the outcomes are directly attributable to the PSHP program. However, a comparison of the PSHP results with past research provides a reasonable context by which to judge program effectiveness.

Two other limitations in this study relate to the sample; these are attrition, and restriction due to parent permission as a selection criterion. In terms of the former, any research which attempts to chart the long-term effects of a program is subject to a certain attrition rate among project participants. Past studies have reported varying levels of attrition, resulting in sample sizes as low as 22 per cent of the original graduate population. Karnes et al. (1980), for example, reported a sample size of 29 per cent of the JEEPH graduate population. The current study was able to gather data on approximately 40 per cent of the total graduates; thus, the size of the sample appears adequate in terms of general findings. With respect to restriction, the demographic data indicated that the sample was representative of the total PSHP population by sex, year of graduation, district enrollment, type of handicap, and severity of handicap. Recognizing the limitations of the study, however, it is the authors' contention that the results presented in this report can be interpreted with a fair amount of confidence.

RESULTS AND DISCUSSION

Placement

Two highly significant indicators of the long-term efficacy of preschool intervention are the assignment which students receive upon graduation and current grade placement, Attention to these outcomes provides evidence as to whether or not preschool intervention has equipped students with the necessary skills to meet the requirements of regular education. In addition, the variables assess the extent to which these effects prevail as the student progresses through the grades (Royce, 1979).

The results obtained from the present study of PSHP graduates are found in Tables 4 and 5. As Table 4 indicates, 36 students or 55% of the total

TABLE 4

ASSIGNMENT UFON GRADUATION FROM PSHP

Assignment	N	%
Nursery School	2	3
Kindergarten	36	55
Ungraded Special Education	28	42
Total	66	100

sample were assigned to regular Kindergarten programs following their participation in the BOCES Preschool Program. An additional 3% of the graduates were placed in regular nursery schools, since they were not of school age at the time of program completion. The data presented in

Table 5 reveals that 53% of the children are currently enrolled in regular classrooms or regular nursery school programs. These findings are somewhat lower than the results reported in either the Battelle study or the Karnes study, and even fall below the rate of placement for 1979 and 1980 PSHP graduates. One can only speculate that the higher socioeconomic status of the Westchester area and the potentially higher level of student performance might have some bearing on graduate placement.

TABLE 5

PLACEMENT IN 1980-1981

Current Grade	N	%
Regular Education		
Nursery School	2	3
Kindergarten	10	16
1st	14	21
2nd	6	9
3rd	2	3
4th	1	1
Subtotal	35	53
Ungraded Special Education		
Communication Disorders	15	23
Mentally Retarded	3	5
Transitional Kindergarten	7	10
Cross Categorical	6	9
Subtotal	31	47
Grand Total	66	100

The data presented in Tables 4 and 5 also provide evidence of the appropriateness of placement recommendations made by PSHP staff. That is, these tables viewed together reveal that only three students, or 8% of those originally recommended for regular education, have subsequently been placed in a special education program. For all three of the children, placement in special education occurred at the end of first grade. This finding is very encouraging, especially in light of other research, 12% of the Karnes graduates did not maintain their assignment in regular classrooms. Thus, PSHP staff were extremely accurate in their recommendations for placement of graduating students.

An additional placement question which this study addressed was whether assignment to regular or special education differed according to severity of handicap. To answer this question, a chi square was calculated which

TABLE 6

ASSIGNMENT UPON GRADUATION
BY SEVERITY OF HANDICAP
(N = 51†)

Severity	Regular	Special
At Risk	11	2
Mild	11	9
Moderate	4	4
Severe	2	8

$\chi^2 = 9.73^*$ (df = 3)
$^*p < .05$

†Only 51 children were included in this computation since two graduates are presently enrolled in nursery school.

yielded statistically significant differences among the various levels of severity with regard to placement. (See Table 6.) Specifically, the "at risk" population who are less intellectually handicapped were more likely to be assigned to regular education. Conversely, severely handicapped children were more likely to be placed in special education. These findings, while not totally unexpected, do suggest that preschool education tends to benefit the high risk populations more than the severely impaired in terms of placement after preschool. However, before a conclusive statement can be made in this regard, more studies must be conducted which examine this issue.

Retention

Grade retention is a further indicator of students' school performance, and the results of the PSHP study are overwhelmingly positive in this area. None of the graduates currently placed in regular education programs[1] have been retained, which indicates that each is following a normal progression through the grades. Some caution is warranted in viewing this finding, since the majority of the sample (71%) had only two years of follow-up data available. However, there is no reason to suspect that normal progression would not continue for these students. Thus, the data provides a strong indication that children placed in regular education are making progress in line with the expectations of non-handicapped students.

Special Services

With respect to school data, a final variable which measures the long term efficacy of preschool is the degree to which special services are

[1]Since special education is ungraded, the only means of computing retention for PSHP graduates placed in special programs is at a point when they enter regular classrooms and there is a discrepancy between their expected progression and their actual grade placement.

required by students in regular classrooms. The results from the PSHP study are presented in Table 7 below. As this data indicates, nearly one-third (30%) of the program graduates currently enrolled in regular education require no additional services outside of the classroom routine. This finding is consistent with the results reported in the Karnes and Battelle studies where 40% and 50% of the students, respectively, were not receiving special services.

TABLE 7

REMEDIAL SERVICES CURRENTLY PROVIDED TO CHILDREN IN REGULAR EDUCATION CLASSES

Grade	Speech and Language	Occupational Therapy	Resource Teacher	Multiple Services	No Services	Total
K	5	-	2	1	2	10
1	6	-	1	1	6	14
2	3	-	-	1	2	6
3	1	-	1	-	-	2
4	-	-	-	1	-	1
Total	15 (46%)	-	4 (12%)	4 (12%)	10 (30%)	33 (100%)

These results also demonstrate that the majority of those children who require special services, i.e. 46% of the sample, are receiving speech and language intervention. This finding is particularly important to note in light of recent research revealing that the most common service

provided to all children in regular education programs is speech and language therapy (Smith, Zahniser, Pelletreau, and Salomon, 1980). Thus, the findings are indicative of the extent to which the program helped to minimize the need for special services among PSHP graduates.

Teacher Ratings

Data obtained from the Teacher Questionnaire provided information concerning the school performance of former PSHP students as compared to their class peers. Teacher perceptions regarding cognitive, academic, social and communication skills and attitudes towards school were measured on a 5-point Likert-type scale (1 = low and 5 = high); a rating of 3 indicated that the child was performing similarly to the average child in the classroom.

Table 8 presents the results and reveals several encouraging findings. PSHP students are performing closely to their peers, particularly in the cognitive and attitudinal areas. In fact, in these two areas as well as in the academic domain, the results were higher than those reported by Karnes for a similar handicapped population. Perhaps, the most significant finding, however, relates to student attitudes, the area which received the highest rating from teachers in all five grades. Interestingly, past research (Lazar and Darlington, 1979) has indicated that attitude towards school is one of the best predictors of later school achievement. The PSHP results are, therefore, extremely positive.

TABLE 8

TEACHERS' COMPARISON OF THE PERFORMANCE OF
PSHP GRADUATES TO CLASS PEERS IN REGULAR EDUCATION

Grade	Cognitive		Academic		Communication		Attitudes		Social	
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
K (N=10)	3.5	.9	2.8	1.1	3.1	1.2	4.3	.7	3.2	1.2
1 (N=9)	3.3	1.4	3.0	1.2	3.3	1.3	4.2	1.1	3.2	1.3
2 (N=6)	2.9	1.3	2.7	1.3	2.7	1.0	3.9	.9	3.1	1.1
3 (N=2)	2.9	.8	2.5	1.5	2.5	.5	3.2	.4	2.3	.8
4 (N=2)	3.0	*	4.0	*	2.6	1.1	4.7	.6	3.0	.9
Total	3.1	.27	3.0	.59	2.8	.35	4.1	.56	2.9	.38

*one data-point

Parent Ratings

Parents of PSHP graduates were asked to respond to several open-ended and structured items related to their children's school performance. In addition, they were requested to address issues regarding program impact. The results, which were classified by Student Performance and Program Impact, are presented in the sections below.

Student Performance. In general, parents of both regular and special education students indicated an extremely high degree of satisfaction with their child's current performance in school. Performance was rated in terms of academic progress, attitudes towards school, and

ability to socialize with peers. In the area of progress, 96% of the regular education parents indicated that their child was performing adequately or better in school. This finding was relatively consistent across grade levels. Approximately 80% of the special education parents also responded positively to this issue. Altogether, only three parents felt their child was not making adequate progress. The results are shown in Table 9. More significantly, of those who reported positive

TABLE 9

PARENTS' RESPONSES TO YES-NO ITEM

"Is your child making adequate progress?"

Grade Level	Responses		
	Yes	No	Don't Know
Kindergarten	100%	--	--
1st and 2nd	93%	--	7%
3rd and 4th	100%	--	--
Subtotal Regular Education	96%	--	4%
Subtotal Special Education	78%	11%	11%
Grand Total	87%	6%	7%

results for school progress, 58% of both regular and special education parents indicated that their children were doing very well in school. The subjects in which parents felt their children were performing best were mathematics and science. Conversely, language arts was the area in which children were reported to have the greatest difficulty.

These findings are not surprising given that the majority of PSHP graduates (64%) are speech and language impaired. Thus, the parent ratings provide a strong indication that program graduates in both regular and special education are making adequate progress in school.

With regard to attitudes towards school, parents responding to the survey again demonstrated very positive results. Specifically, 92% of all parents reported that their child liked school (See Table 10). As mentioned with the teacher ratings, this finding is extremely encouraging in that attitude towards school has been found to be a significant predictor of later school achievement. It is

TABLE 10

PARENTS' RESPONSES TO YES-NO ITEM

"Does your child like school this year?"

Grade Level	Responses		
	Yes	No	Don't Know
Kindergarten	100%	--	--
1st and 2nd	93%	7%	--
3rd and 4th	100%	--	--
Subtotal Regular Education	96%	4%	--
Subtotal Special Education	89%	7%	4%
Grand Total	93%	5%	2%

also important to note that only three parents, one in regular education and two in special education indicated that their child did not like school this year. Also, parents responded similarly across grade levels and program placement. Overall, these results reveal that PSHP graduates developed very positive attitudes towards school.

Finally, parents gave extremely encouraging responses in the area of children's ability to socialize with peers. The results appear in Table 11. Fifty-two of the 55 parents (94%) felt that their children "got along well" with their classmates. These results are particularly significant for the children attending regular education programs. Past

TABLE 11

PARENTS' RESPONSE TO A YES-NO ITEM

"Does your child get along well with peers?"

Grade Level	Responses	
	Yes	No
Kindergarten	100%	--
1st and 2nd	93%	7%
3rd and 4th	100%	--
Subtotal Regular Education	96%	4%
Subtotal Special Education	93%	7%
Grand Total	94%	6%

research on handicapped children has indicated that such children sometimes experience great difficulty socializing within a mainstreamed setting. Thus, the results reported in this area demonstrate that students who have participated in the PSHP Program are successful when interacting with their peers.

In summary, the parent ratings regarding children's school performance are very positive. The significance of these ratings becomes apparent when viewed in light of past research. The overall responses of PSHP parents exceeded those of the Karnes study with respect to children's academic progress and ability to socialize with peers. In the area of attitudes towards school the findings were very similar. The results of this study also were consistent with the Battelle study in terms of parents' positive responses.

Program Impact. The responses which parents gave to the questions of program impact provide, perhaps, the best indicator of the long term efficacy of the Preschool Handicapped Program. As the results in Table 12 demonstrate, all but one of the parents reported that their child would not have done as well in either regular or special education without the benefit of the BOCES Program. Furthermore when asked to indicate the greatest impact, the majority of parents (70%) responded by saying "all areas" or "overall development". These responses clearly indicate that the Program was beneficial to the graduates and facilitated their growth across all cognitive and social areas. Again, the PSHP findings must be considered significant when compared to other studies of this nature. In the Karnes study, for example,

TABLE 12

PARENTS' OPINIONS ABOUT THE ROLE OF PSHP ON LATER SCHOOL PERFORMANCE

"How do you think your child would have done in Kindergarten/ Special Education if he/she had not participated in the BOCES Preschool Program?"

Placement	Responses			
	Not as Well	Just as Well	Better	Don't Know
Regular Education	100%	--	--	--
Special Education	96%	--	--	4%
Total	98%	--	--	2%

92% of the parents reported positive results with respect to program impact. Thus, the parents of PSHP graduates have strongly supported the program in terms of its long range impact on their children.

Persistence of Effect

An important issue when considering the long-range efficacy of preschool programs is the persistence of positive effects. To provide data regarding this variable, a cross-sectional analysis of teacher ratings was undertaken. Here, the question of interest was whether teacher ratings of children's cognitive, academic, social and communication skills and of their attitudes towards school changed as these children proceeded from kindergarten through the elementary grades. A non-parametric one-way analysis of variance was used to test for grade-related changes in the skill and attitude areas. All findings were statistically nonsignificant--the desired result--which suggests that child performance

was relatively consistent from kindergarten through fourth grade. Based on these findings, there is evidence that, for PSHP students, effects did persist at least in areas where the children were compared to their classmates.

CONCLUSIONS AND IMPLICATIONS

In reviewing the findings from the PSHP follow-up study, the long term effectiveness of the program becomes clearly evident. While the limitations of the research design must be considered, the overwhelmingly positive nature of the PSHP results indicate that the BOCES Preschool Program has had some lasting effects upon its graduates. PSHP graduates are performing adequately in school, progressing normally through the grades, socializing well with their peers, requiring a minimal amount of special services, and achieving at a similar level to their peers in cognitive and academic areas. Furthermore, these children have been reported to have extremely positive attitudes towards school by both their teachers and parents. The results from this study become even more significant when viewed in terms of their educational implications. These implications are discussed below.

Participation in the Preschool Handicapped Program has facilitated the placement of students within the least restrictive environment and enabled them to perform in line with the expectations of non-handicapped students. The follow-up data indicated that over half of the graduates were assigned and are currently placed in regular education. Moreover, all of these students have progressed through the grades without being held back, while approximately one-third of them require no additional services outside of the regular classroom routine. Teacher ratings of PSHP graduates in comparison to their peers also indicate that these children are performing comparably to their classmates, most of whom are not handicapped. Thus, the program has enabled the majority of graduates to participate in regular education programs in an effective manner.

Precise educational planning reduced or eliminated the negative effects of a child's handicapping condition, thus, demonstrating the cost-benefits of preschool education. PSHP staff were able to assign 55% of the program graduates to regular education programs. That is, a majority of the children participating in the BOCES Program no longer required a special education placement when they reached school age, thus, reducing the overall costs of their education for the local district. Additionally, the normal grade progression and the reduced need for special services demonstrated by PSHP graduates have contributed significantly to the overall reduction in costs for educating these handicapped children.

Decisions made by a transdisciplinary team regarding child placement upon completion of preschool seem to insure the appropriateness of that placement for the handicapped child. Drawing on the expertise of a classroom teacher, psychologist, social worker, and speech therapist, the Preschool Handicapped Program assigned graduates to both regular and special education with 92% accuracy in their recommendations. Since only three children out of the follow-up sample who were originally assigned to regular programs were subsequently placed in special education, the ongoing assessments and educational planning performed by the PSHP teams must be considered effective as a child placement process.

PSHP graduates have significantly positive attitudes towards school which indicates the potential for greater school achievement in later years. Children currently placed in regular classrooms were rated by their teachers as having more positive attitudes than their peers at

all grade levels. Moreover, 92% of the parents of PSHP graduates in both regular and special education indicated that their children liked school. Given the research on attitudes as a significant predictor of later school achievement (Lazar and Darlington, 1979), one can hypothesize that these children will perform similarly to those studied in other research.

Parents of PSHP graduates consider preschool education to be a critical factor in the success which their handicapped children are experiencing in school. Since parents bring a unique historical perspective to bear on their assessments of children's progress, the perceptions which parents have of that progress is significant. In the Preschool Handicapped Program, an overwhelming number (98%) of the parents of both regular and special education students felt that their children would not have been as successful in school without participating in this preschool program. Thus, PSHP parents indicated that the Program contributed significantly to their children's social and academic performance.

In summary, participation in the BOCES Preschool Handicapped Program has long range benefits for its graduates. The data, thus, provides additional testimony for the efficacy of preschool education as an essential intervention for handicapped children.

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APPENDIX A

FOLLOW-UP SAMPLE BY SCHOOL DISTRICT

District	Number in Follow-Up Study		Total Number PSHP 1976-1980	
	N	%	N	%
1	6	9	29	17
2	1	1	2	2
3	1	1	2	2
4	2	3	6	3
5	7	11	14	8
6	5	8	14	8
7	1	1	1	1
8	16	25	34	19
9	3	5	6	3
10	1	1	2	1
11	-	-	5	3
12	3	5	10	6
13	9	15	13	8
14	1	1	4	2
15	8	12	22	13
16	1	1	2	1
17	-	-	4	2
18	-	-	-	-
19*	1	1	1	1
Total	66	100	171	100

*Not serviced by Putnam/Northern Westchester BOCES